Part 3 of 4

Gill

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Mark Gill

Title: Consulting Engineer – Electric Transmission Planning

Summary:

Dominion Virginia Power proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

Company Witness Mark Gill provides an overview of the Company's transmission system, PJM Interconnection, L.L.C.'s FERC-approved Regional Transmission Expansion Plan process and the transmission facilities required to provide service requested by a retail electric service customer in Prince William County, Virginia.

Existing Gainesville-Loudoun 115 kV Line #124 will be converted to 230 kV and tapped for the creation of the Haymarket Loop that will run approximately 5.1 miles to the customer's location.

DIRECT TESTIMONY
OF
MARK R. GILL
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00107

Q. Please state your name and position with Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company").

A. My name is Mark R. Gill, and I am a Consulting Engineer in the Electric Transmission Planning group of the Company. My office is located at One James River Plaza, 701 East Cary Street, Richmond, Virginia 23219.

Q. What is your educational and professional background?

A. I received a Bachelor of Science degree in Electrical Engineering from the University of Virginia in 1989. I have been licensed as a Professional Engineer in the Commonwealth of Virginia since 1994. I have been employed by the Company for 26 years. My experience with the Company includes Customer Service (1988-1992), Circuit Calculations/System Protection (1992-1999), Distribution Planning (1999-2007) and Transmission Planning (2007-Present).

Q. What are your responsibilities as a Consulting Engineer?

A. I have responsibility for planning the Company's electric transmission system in the northern Virginia area for voltages of 69 kV through 500 kV.

Q. What is the purpose of your direct testimony?

A. In order to provide service requested by a retail electric service customer (the "Customer") in Prince William County, Virginia; to maintain reliable service for the overall growth in the area; and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; the Company proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

My direct testimony will discuss the need for, and benefits of, the Project from a transmission planning perspective. I am co-sponsoring Sections I.A through I.C, I.E and I.I of the Appendix with Company witness Harrison S. Potter. I am also sponsoring Section I.H of the Appendix.

Q. Please provide an overview of the Company's transmission system and the transmission planning process.

A. Dominion Virginia Power's transmission system is responsible for providing transmission service to the Company's retail customers and also to the customers of Old Dominion Electric Cooperative, Northern Virginia Electric Cooperative ("NOVEC"), Virginia Municipal Electric Association, and Central Virginia Electric Cooperative in Virginia, as well as the customers in North Carolina of North Carolina Electric Membership Cooperative and North Carolina Eastern Municipal Power Agency. The Company needs to be able to maintain the overall, long-term reliability of its transmission system, as its customers require more power in the future.

Dominion Virginia Power is part of the Eastern Interconnection transmission grid, meaning it is interconnected, directly or indirectly, with all of the other transmission systems in the U.S. and Canada between the Rocky Mountains and the Atlantic coast, except Quebec and most of Texas. All of the transmission systems in the Eastern Interconnection are dependent on each other for support in moving bulk power through the transmission system and for reliability support. Dominion Virginia Power's service to its customers is extremely reliant on a robust and reliable regional transmission system.

Dominion Virginia Power also is part of the PJM Interconnection L.L.C. ("PJM") regional transmission organization (RTO) providing service to a large portion of the eastern United States. PJM is currently responsible for ensuring the reliability and coordinating the movement of electricity through all or parts of Delaware,

Illinois, Indiana, Kentucky, Maryland, Michigan, New Jersey, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and the District of Columbia. This service area has a population of about 60 million and on July 21, 2011, set a record high of 158,450 MW for summer peak demand, of which Dominion Virginia Power's load portion was approximately 19,636 MW serving 2.4 million customers. On July 22, 2011 the Company set a record high of 20,061 MW for summer peak demand. On February 20, 2015, the Company set a winter and all-time record demand of 21,651 MW. Moreover, based on the 2015 PJM Load Forecast, the Dominion Zone is expected to be one of the fastest growing zones in PJM with an average growth rate of 1.7% over the next ten years compared to the PJM average of 1.0% over the same period.

As a Transmission Owner in PJM's planning region, the Company fully participates in PJM's transmission planning process under PJM's Regional Transmission Expansion Plan Protocol and is obligated under the PJM Operating Agreement to construct, operate and own transmission facilities as designated by PJM in its annual Regional Transmission Expansion Plan ("RTEP"). Each year, PJM, Transmission Owners and other stakeholders conduct a thorough study of the electric transmission grid and, based upon the findings, consider proposals to address the system needs identified by the study. At the conclusion of this process, the PJM Board approves its annual RTEP.

Q. Please describe the load area served by the Project.

A. The Customer is expanding a data center campus in Prince William County, which has been identified as the Haymarket Campus ("Haymarket Campus").

This development is approximately 44 acres located west of the Town of Haymarket approximately 0.4 mile west of U.S. Route 15 ("U.S. 15") along John Marshall Highway (State Route 15 (SR15")), and the Customer has requested retail electric service from Dominion Virginia Power. The total Customer load at the Haymarket Campus is projected to be approximately 120 MVA, consisting of three buildings. The total loading at Haymarket Substation, including the Customer's load, is projected to be approximately 160 MVA at full build-out. The proposed new electric transmission facilities must be in service by summer 2018 to serve the Customer's development at the Haymarket Campus.

Q. Please describe the present transmission system in the vicinity of the proposed Haymarket Substation.

A. As presented in Attachment I.E.1 of the Appendix, Dominion Virginia Power's existing utility system in the vicinity of the proposed Haymarket Substation includes four substations (Gainesville, Warrenton, Middleburg, and New Road). The Company anticipates that Wheeler Switching Station ("Wheeler Station"), proposed in Case No. PUE-2014-00025 pending before the Commission, will also be in service by summer 2017.

The Company's Gainesville Substation in Prince William County is located south of Prince William Parkway and west of Balls Ford Road, approximately 5.0 miles (straight line) east of proposed Haymarket Substation, adjacent to a north-south transmission corridor that contains two 500 kV lines, three 230 kV lines, and one 115 kV line. It is sourced by the three 230 kV transmission lines that are underbuilt circuits on the 500 kV Meadow Brook-Loudoun Line #535 and

Morrisville-Loudoun Line #569 that bypass Gainesville Substation. Bristers-Gainesville Line #2101 enters Gainesville from the south as the underbuilt 230 kV circuit on Line #569, while existing 230 kV Remington CT-Gainesville Line #2114 also enters Gainesville from the south as the underbuilt circuit for Line #535. Loudoun-Gainesville Line #2030 enters Gainesville from the north as the underbuilt 230 kV circuit for Line #569. The 115 kV Loudoun-Gainesville Line #124 enters Gainesville Substation from the north as the underbuilt circuit for Line #535 and will be converted from 115 kV to 230 kV operation by adding two 230 kV breakers to create a new terminal. The three existing 230 kV transmission lines terminate in a six-breaker 230 kV ring bus that also feeds one 230-115 kV, 224 MVA transformer (TX#3), one 230-115 kV, 168 MVA transformer (TX#5), and two 230-34.5 kV, 84 MVA transformers (TX#1 and TX#4). TX#1 and TX#4 feed a total of four 34.5 kV distribution circuits that serve approximately 9,653 customers in Prince William and Fauquier Counties. TX#2, a 230-115 kV, 168 MVA transformer formerly feeding 115 kV Gainesville-Lomar Delivery Point ("DP") Line #172, has been reconfigured, creating room for the two additional 230 kV breakers needed to terminate the converted Line #124 at Gainesville Substation. TX#3 and TX#5 both feed NOVEC's Gainesville DP, which is contiguous with the western edge of the Company's Gainesville Substation. By 2017, as part of the proposed project in Case No. PUE-2014-00025, the Company anticipates that Gainesville TX#5 will be removed to accommodate the conversion of NOVEC's Gainesville-Wheeler 115 kV Line #922 to 230 kV operation by freeing up a 230 kV terminal position in the ring bus.

Warrenton Substation is located in Fauquier County, approximately 10.4 miles (straight line) southwest of the proposed Haymarket Substation and is sourced by radial 230 kV Line #2086 (Remington CT-Warrenton). It presently contains one 84 MVA, 230-34.5 kV and one 50 MVA, 230-34.5 kV transformer; four 34.5 kV distribution circuits; and associated equipment. It is expected that the outcome of the previously mentioned Case No. PUE-2014-00025 will result in Warrenton Substation being networked with either a second 230 kV line from Remington CT Switching Station or a new line to the proposed Wheeler Station. Warrenton Substation is 15.4 distribution line miles from the Haymarket Campus and has no direct connectivity with the Customer's parcel. Warrenton distribution circuit ("DC") #492 ties with Gainesville DC #695.

Middleburg Substation is located in Loudoun County, approximately 10.5 miles (straight line) northwest of the proposed Haymarket Substation and is sourced by radial 115 kV Line #49 (New Road-Middleburg). It contains one 40 MVA 115-34.5 kV transformer, one 20 MVA 115-34.5 kV transformer, one 33 MVA 115-34.5 kV transformer, four 34.5 kV distribution circuits, and associated equipment. Middleburg Substation is 25.1 distribution line miles from the Haymarket Campus and has no direct connectivity to the Customer's parcel.

New Road Switching Station ("New Road Station") is located in Loudoun County, approximately 8.1 miles (straight line) north of the proposed Haymarket Substation and is sourced by double circuit 230 kV Line #2117 and #2123 from Loudoun Station. Each 230 kV line terminates at a 230 kV breaker (set-up for a future ring arrangement) feeding a 168 MVA 230-115 kV transformer (two total).

The low-side of each transformer terminates in a 115 kV breaker and is networked through a normally-closed 115 kV tie breaker. Two 115 kV lines are sourced by New Road Line #49 to the Company's Middleburg Substation and Line #113 (a single span) to NOVEC's New Road DP directly adjacent to New Road Station.

Company witness Potter describes the need for Haymarket Substation from a distribution perspective.

Q. Why do the proposed Haymarket Substation and Haymarket Loop need to be built at this time?

A. Appendix Attachment I.B.1 shows historical and projected loads for the three 34.5 kV distribution circuits (Gainesville DC #378, #379 and #695) without the load contribution associated with the Haymarket Campus. Five years of historical and 10 years of projected loads are shown for the summer season. Summer loads are shown because the higher ambient temperatures cause customer loads in this area to be at their annual maximum, and the heat also reduces the thermal capacity of the distribution system components such as wires and transformers. Load growth was estimated at 1% each year.

Historical and projected loads for the three 34.5 kV distribution circuits (Gainesville #378, #379 and #695) that will serve the Customer's Haymarket Campus are shown on Appendix Attachment I.B.2. As load in the Haymarket Load Area increases along with the Customer's requested load ramp schedule, overloads are projected to occur in summer (commencing June 1) 2017. The Customer has requested service for 101 MVA by summer 2017, and with only

48.9 MVA available on distribution circuits, the Company has worked with the Customer to adjust the original ramp schedule mentioned in Section I.A.

Attachment I.B.3 to the Appendix shows historical and projected loads for the Haymarket Load Area with the Customer's adjusted ramp schedule with successful completion of Haymarket Substation. Normal and contingency overloads on the area's distribution system are solved with the proposed Project.

Additionally, Haymarket Substation will serve area customer load in addition to the Customer's load. This arrangement will enhance the reliability for customers in the area for two distinct reasons. First, with additional capacity, the Company has greater opportunity to switch load to other available circuits in the event of an outage on any given circuit which can result in faster restoration times. Second, by constructing new distribution circuits into the load area from the proposed Haymarket Substation, the length of certain circuits serving proximate customers from Gainesville Substation is reduced from approximately six miles to less than one mile.

Q. Please explain how the mandatory NERC Reliability Standards relate to the need for the proposed Haymarket Substation.

A. Federally mandated NERC Reliability Standards establish minimum criteria with which all public utilities must comply as components of the interstate electric transmission system. Moreover, the Energy Policy Act of 2005 mandates that electric utilities must follow these NERC Reliability Standards, and utilities could be fined up to $1 million a day per violation if found to be in non-compliance. NERC has been designated by the Federal Energy Regulatory Commission as the

Electric Reliability Organization for the United States.

In order to comply with mandatory NERC Reliability Standards, the Company maintains NERC-compliant "Facility Connection Requirements," which include the Company's Transmission Planning Criteria. Section C.2.6 of the Company's Transmission Planning Criteria limit loading on a radial feed in excess of 100 MW without "an alternate transmission supply." The double circuit configuration of the Haymarket Loop satisfies this criterion.

Q. Has the Company considered whether there are feasible alternatives to construction of the proposed facilities?

A. Yes. In addition to the distribution alternatives discussed in the prefiled direct testimony of Company witness Potter, the Company also considered several transmission alternatives that were rejected in favor of the proposed Project. Section I.C of the Appendix discusses these alternatives and the reasons they were found to be inferior to the Project.

Q. How will the proposed Project affect economic development in Virginia?

A. The Project is needed to assure reliability of the transmission and distribution systems in the local area. A robust and reliable system is an important part of economic development in Virginia. The proposed Project will support continued economic development in Virginia by reinforcing the transmission system in Prince William and Loudoun Counties in order to maintain and improve reliability in the local area that includes the additional load requirements of the Customer's new data center campus.

Q. Have you reviewed the demand-side resources incorporated in the Company's planning studies used in support of this application, as directed by the Commission in its Order issued on November 26, 2013, in Case No. PUE-2012-00029?

A. Yes. This Project is being driven by a large block load addition from a single customer that must be served from an on-site substation which requires a transmission source. The need to construct the double circuit 230 kV transmission line proposed by the Company for this Project would not be diminished or eliminated, and is in fact wholly unaffected, by the application of demand-side resources.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.

1110208

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Harrison Potter

Title: Engineer III – Electric Distribution Planning

Summary:

Dominion Virginia Power proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

Company Witness Harrison Potter provides an overview of the Company's distribution system in the area and the customer's identified load addition.

Witness Potter discusses the reasons for the Company's rejection of distribution alternatives to the proposed Project.

DIRECT TESTIMONY
OF
HARRISON S. POTTER
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00107

Q. Please state your name and position with Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company").

A. My name is Harrison S. Potter, and I am an Engineer III in the Distribution Planning Department of the Company.

Q. What is your educational and professional background?

A. I am a 2012 graduate from Virginia Commonwealth University with a Masters in Business Administration and a 2005 graduate from Virginia Polytechnic Institute and State University with a Bachelor of Science in Mechanical Engineering. I have been employed by the Company for 11 years. My experience with the Company includes distribution planning (eight years), distribution design (one year), and GIS services (two years).

Q. What are your responsibilities as an Engineer III?

A. I have responsibility for planning the Company's electric distribution system in the Company's Warrenton, Fairfax, Charlottesville and Orange offices for voltages under 69 kV. This includes the area in and around Loudoun, Virginia, including all the electrical distribution substations in this application.

Q. What is the purpose of your direct testimony?

A. In order to provide service requested by a retail electric service customer (the "Customer") in Prince William County, Virginia; to maintain reliable service for the overall growth in the area; and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company") proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

I will describe the need for the Project from a distribution planning perspective. In addition, I am co-sponsoring Sections I.A through I.C, I.E and I.I of the Appendix with Company witness Mark R. Gill.

Q. Please describe the load area served by the Project.

A. The Customer is developing a data center campus on 44 acres in Prince William County, which has been identified as the Haymarket Campus ("Haymarket Campus"). The facility is located west of the Town of Haymarket approximately

0.4 mile west of James Madison Highway (U.S. Route 15 ("U.S. 15")) along John Marshall Highway (State Route 55 ("SR 55")), and the Customer has requested retail electric service from Dominion Virginia Power. The total Customer load at the Haymarket Campus is projected to be approximately 120 MVA, consisting of three buildings. The proposed new electric transmission facilities must be in service by summer 2018 to serve the Customer's development. The total loading at Haymarket Substation, including the Customer's load, is projected to be approximately 160 MVA at full build-out.

Q. Please define the Haymarket load area.

A. The "Haymarket Load Area" refers to the load area served by the proposed Haymarket Substation.

Q. Why do the proposed Haymarket Substation and Haymarket Loop need to be built at this time?

A. Appendix Attachment I.B.1 shows historical and projected loads for the three 34.5 kV distribution circuits (Gainesville DC #378, #379 and #695) without the load contribution associated with the Haymarket Campus. Five years of historical and 10 years of projected loads are shown for the summer season. Summer loads are shown because the higher ambient temperatures cause customer loads in this area to be at their annual maximum, and the heat also reduces the thermal capacity of the distribution system components such as wires and transformers. Load growth was estimated at 1% each year.

Historical and projected loads for the three 34.5 kV distribution circuits (Gainesville #378, #379 and #695) that will serve the Customer's Haymarket Campus are shown on Appendix Attachment I.B.2. As load in the Haymarket Load Area increases along with the Customer's load, overloads are projected to occur in summer (commencing June 1) 2017. The Customer has requested service for 101 MVA by summer 2017, and with only 48.9 MVA available on distribution circuits, the Company has worked with the Customer to adjust the ramp schedule as mentioned in Section I.A.

Attachment I.B.3 of the Appendix shows historical and projected loads for the Haymarket Load Area with the Customer's adjusted ramp schedule with successful completion of Haymarket Substation. Normal and contingency overloads on the area's distribution system are solved with the proposed Project.

Additionally, the proposed Haymarket Substation will serve area customer load in addition to the Customer's load. This arrangement will enhance the reliability for customers in the area for two distinct reasons. First, with additional capacity, the Company has greater opportunity to switch load to other available circuits in the event of an outage on any given circuit which can result in faster restoration times. Second, by constructing new distribution circuits into the load area from the proposed Haymarket Substation, the length of certain circuits serving proximate customers from Gainesville Substation is reduced from approximately six miles to less than one mile.

Q. Has the Company considered whether there are feasible distribution alternatives to construction of the proposed facilities?

A. The Company's distribution network to the Customer's site will consist of three 34.5 kV distribution circuits (Gainesville DC #378, #379, #695). These three circuits represent the full extent of load that the Company's distribution network will be able to serve until the proposed Haymarket Substation is energized. Gainesville DC #379 and #695 are rated for 36 MVA and Gainesville DC #378 is rated for 54 MVA (for a total of 126 MVA) with differing amounts of existing load currently served by each circuit. Due to the amount of load identified by the Customer and the line mileage from the Company's existing Gainesville Substation, prudent utility practice would prevent building additional distribution circuits to feed the Customer long-term.

Q. What was the Company's conclusion after evaluating these distribution alternatives you have described?

A. The Company considered and rejected electrical alternatives to the proposed Project, as described in Section I.B. of the Appendix, including the use of distribution facilities as well as existing and planned substations to serve the need for the Project. For the reasons stated, all distribution alternatives to the proposed Project were therefore rejected.

Q. Does this conclude your prepared direct testimony?

A. Yes, it does.

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Robert J. Shevenock II

Title: Consulting Engineer – Electric Transmission Line Engineering

Summary:

Dominion Virginia Power proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

Company Witness Robert J. Shevenock, II provides an overview of the design of the transmission line components of the proposed electric transmission facilities from a transmission line engineering perspective.

The proposed Project includes the installation of the proposed Haymarket Loop on new right-of-way using double circuit, single-shaft galvanized steel poles with three twin-bundled 795 ACSR 26/7 phase conductors with a summer transfer capability of 1225 MVA. By cutting converted Line #124 at Haymarket Junction, the Haymarket Loop will create two new 230 kV lines to be designated 230 kV Gainesville-Haymarket Line #2176 and 230 kV Haymarket-Loudoun Line #2169.

The estimated cost of the Project is approximately $51.0 million, which includes approximately $30.2 million for transmission line work. The estimated construction time for the Project is twelve months.

DIRECT TESTIMONY
OF
ROBERT J. SHEVENOCK II
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00107

Q. Please state your name and position with Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company").

A. My name is Robert J. Shevenock II, and I am a Consulting Engineer in the Electric Transmission Line Engineering department of the Company. My business address is One James River Plaza, 701 East Cary Street, Richmond, Virginia 23219.

Q. What is your educational and professional background?

A. I received a Bachelor of Science degree in Electrical Engineering from the Pennsylvania State University in 1985. I have held various engineering titles with the Company since 1985 in the Electric Transmission Line Engineering department.

Q. Please describe your areas of responsibility with the Company.

A. I am responsible for the estimating and engineering design on high voltage transmission line projects from 69 kV to 500 kV.

Q. What is the purpose of your testimony in this proceeding?

A. In order to provide service requested by a retail electric service customer (the "Customer") in Prince William County, Virginia; to maintain reliable service for

the overall growth in the area; and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company") proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

I will describe the design characteristics of the transmission line proposed in the Application, and I will provide electric and magnetic field ("EMF") data for the proposed facilities. I am sponsoring Sections I.D, I.F, II.A.3, II.A.6, II.B and IV of the Appendix. I am also co-sponsoring Section I.A of the Appendix with Company witnesses Mark R. Gill and Harrison S. Potter, and Section I.G of the Appendix with Company witness Wilson O. Velazquez.

Q. Please describe the design of the facilities proposed in this application.

A. The proposed Haymarket Loop will be constructed on new right-of-way using double circuit, single-shaft galvanized steel poles with three twin-bundled 795 ACSR 26/7 phase conductors with a summer transfer capability of 1225 MVA.

By cutting converted Line #124 at Haymarket Junction, the Haymarket Loop will create two new 230 kV lines to be designated 230 kV Gainesville-Haymarket Line #2176 and 230 kV Haymarket-Loudoun Line #2169.

Q. Why was the proposed tower structure chosen?

A. The proposed structures will allow the installation of two 230 kV circuits in the proposed 100 foot right-of-way. The single shaft steel pole will minimize the footprint of the structure. The H-frame structure will provide for a lower structure height where necessary. The galvanized material is consistent with the structures for tapped Line #124.

Q. In accordance with Section 10 of House Bill 1319 enacted by the 2008 General Assembly, please describe how the Company proposes to implement low cost and effective means to improve the aesthetics of the proposed overhead transmission line project.

A. Yes, for the reasons provided in response to the previous question.

Q. What is the estimated construction cost of the proposed Project?

A. The estimated cost of the Project is approximately $51.0 million, which is comprised of approximately $30.2 million for transmission line work. The estimated cost associated with the proposed Haymarket Substation is discussed in the testimony of Company witness Velzaquez. All costs are in 2015 dollars.

Q. How long will it take to construct the proposed Project?

A. The estimated construction time for this Project along the Proposed Route is twelve months. A period of twelve months will be needed for engineering, material procurement, right-of-way acquisition, and construction permitting.

Q. Have you made calculations of the maximum electric and magnetic field ("EMF") levels for the proposed rebuilt facilities?

A. Yes, and they are shown in Section IV.A of the Appendix for various loading conditions expected to occur at the edges of the proposed right-of-way with the Project. The magnetic fields that I have calculated for the proposed facilities would occur under average and peak loading conditions, based on projected 2018 system flows, at the edge of the right-of-way and would range from 5.495 milligauss ("mG") to 117.445 mG.

Q. How do the strengths of the expected magnetic fields at the edge of the right-of-way compare to magnetic fields found elsewhere?

A. The field strengths shown in Appendix Section IV.A can be compared to those created by other electrical sources. For example, a hair dryer produces 300 mG or more, a copy machine can produce 90 mG or more, and an electric power saw can produce 40 mG or more, depending on the circumstances and operation of these devices. The strength of the field received by the person operating these devices would, of course, depend on the distance between the device and the person operating it. Magnetic field strength diminishes rapidly as distance from the source increases. The decrease is proportional to the inverse square of the distance. For example, a hypothetical magnetic field strength of 10 mG at the

edge of the right-of-way (defined as 50 feet from the centerline) would decrease to 2.5 mG at a point 50 feet outside of the right-of-way.

Q. Does this conclude your pre-filed direct testimony in this proceeding?

A. Yes, it does.

1511110208

Velazquez

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Wilson O. Velazquez

Title: Engineer III – Substation Engineering

Summary:

Dominion Virginia Power proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

Company Witness Wilson O. Velazquez provides a description of the work required for all substation, switching station and ground facilities associated with the Project.

The proposed Haymarket Substation initially will be constructed with four 230 kV circuit breakers in a ring bus configuration, two 230 kV line terminals, two 230-34.5 kV, 84 MVA transformers and nine 34.5 kV circuits. Two 230 kV backbone structures and two shielding structures with shield wire will be installed. The ultimate substation arrangement will consist of the addition of one 230-34.5 kV, 84 MVA transformer and five 34.5 kV circuits to the aforementioned substation equipment.

The estimated cost of the station work for the proposed Project is approximately $20.8 million.

DIRECT TESTIMONY
OF
WILSON O. VELAZQUEZ
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00107

Q. Please state your name and position with Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company").

A. My name is Wilson O. Velazquez, and I am an Engineer III in the Substation Engineering section of the Electric Transmission group of the Company. My business address is 2400 Grayland Avenue, Richmond, Virginia 23220.

Q. What is your educational and professional background?

A. I graduated in 1995 with a Bachelor's degree in Electrical Engineering from the Polytechnic University of Puerto Rico. I am a registered Professional Engineer in the state of Florida. From 1993 to 2000, I worked for Alfa & Omega Electric, S.E. in Puerto Rico, where I held a position as Electrical Engineer for commercial and industrial projects, and was later promoted to the positions of Project Engineer and Project Manager. From 2001 to 2008, I worked as Project Manager at Terry's Electric, Inc. in Florida. My responsibilities included the preparation of estimates and the coordination and supervision of the construction or upgrade of new and existing substations. Since 2008, I have been employed at Dominion Virginia Power as an Engineer III, and my responsibilities include conceptual design, scope development, and cost estimating for all substation construction within the Company.

Q. What are your responsibilities as an Engineer III?

A. I am responsible for conceptual design, scope development, and cost estimating for all new high voltage transmission switching stations, transmission substations and distribution substations.

Q. What is the purpose of your direct testimony?

A. In order to provide service requested by a retail electric service customer (the "Customer") in Prince William County, Virginia; to maintain reliable service for the overall growth in the area; and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company") proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

I will describe the work to be performed as part of the proposed Project at the Company's existing and proposed switching stations and substations. I am also sponsoring Section II.C of the Appendix and co-sponsoring with Company Witness

Robert J. Shevenock II the cost estimate provided in Section I.G of the Appendix for this and substation work.

Q. Please describe the work to be done at Haymarket Substation.

A. The proposed Haymarket Substation initially will be constructed with four 230 kV circuit breakers in a ring bus configuration, two 230 kV line terminals, two 230-34.5 kV, 84 MVA transformers and nine 34.5 kV circuits. Two 230 kV backbone structures and three shielding structures with shield wire will be installed. The ultimate substation arrangement will consist of the addition of one 230-34.5 kV, 84 MVA transformer and two 34.5 kV circuits to the aforementioned substation equipment.

Additionally, a new control enclosure will be installed to accommodate the communications and protective relays cabinets for the initial and future equipment.

The one-line and general arrangement for the proposed Haymarket Substation are provided as Appendix Attachment II.C.1 and Attachment II.C.2, respectively.

Q. What work will be performed in connection with the Gainesville Substation?

A. At Gainesville Substation, existing 115 kV Line #124, between Gainesville and Loudoun Substations, will be converted to 230 kV operation. Existing 230-115 kV Transformer #2 (TX#2) became an emergency spare after the completion of the Company's Cloverhill-Liberty project in May 2015. The space created by the removal of TX#2 will be used to create the new 230 kV line terminal for the converted Line #124. See Appendix Attachments II.C.3 and II.C.4 for the one-line diagram and general arrangement for Gainesville Substation.

Q. Please describe the work to be done at Loudoun Station.

A. At Loudoun Station, existing 115 kV straight bus will have been upgraded for the termination of existing 115 kV lines #124, #156, 115 kV Cap Bank and a tap to the adjacent Mosby Switching Station. The 115 kV bus will be upgraded to meet the Company's clearances for 230 kV operation. Two 230-115 kV transformers are connected to this bus. The Project proposed in this application will remove some of the upgraded 115 kV straight bus and energize it at 230 kV. To reestablish the 115 kV straight bus at Loudoun Station, a new 115 kV rigid bus will be installed to connect Line #156, the 115 kV Cap Bank, the tap for Mosby Station and the two 230-115 kV transformers. The existing equipment associated with the 115 kV Line #124 will be removed, including its associated breaker. Converted Line #124 will terminate at the converted 115 kV bus, now operating at 230 kV. From this 230 kV rigid bus and the use of existing structures at the station, the converted line will be terminated on one vacated side of an existing backbone. See Appendix Attachments II.C.5 and II.C.6 for the one-line diagram and general arrangement for Loudoun Station.

Q. What additional substation work will be required for the alternatives presented in the Appendix?

A. The station work described for the Company's proposed Projects is substantially identical to the work that would be required for the alternative configurations set forth in Section I.C. of the Appendix.

Q. What is the estimated cost of the substation work?

A. As set forth in Section I.G of the Appendix, the estimated total cost of the proposed

Projects is $51.0 million (2015 dollars), of which approximately $20.8 million is for station work. The cost estimate for the Haymarket Substation work is approximately $16.7 million, Gainesville Substation work is approximately $2.0 million and Loudoun Station work is approximately $2.1 million.

Q. Does this conclude your prefiled direct testimony?

A. Yes, it does.

Faison

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Diana T. Faison

Title: Senior Siting and Permitting Specialist – Electric Transmission Right-of-Way

Summary:

Dominion Virginia Power proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

Company Witness Diana Faison supports the routing evaluation undertaken for the proposed Project and provides a description of the permitting required. In addition, Witness Faison addresses the Company's public outreach activities for the Project.

DIRECT TESTIMONY
OF
DIANA T. FAISON
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00107

Q. Please state your name and position with Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company").

A. My name is Diana T. Faison, and I am a Senior Siting and Permitting Specialist, Electric Transmission Right-of-Way, for the Company. My business address is One James River Plaza, 701 East Cary Street, Richmond, Virginia 23219.

Q. What is your educational and professional background?

A. I earned a certificate of Legal Assisting from the Braxton School of Business in 1979. In 1981, I joined Dominion Virginia Power and held several positions in Human Resources, Industrial Relations, Facilities and Fossil and Hydro Power Stations. In 1994, I began working as a Right-of-Way Agent in Distribution Design, securing routes and easements for the Company's distribution lines. I joined Electric Delivery in 2004 to secure real estate and permits for the Company's electric substation projects and have been with Electric Transmission's Routing and Siting group since 2007.

Q. Please describe your areas of responsibility with the Company.

A. My responsibilities include identifying appropriate routes for transmission lines and sites for substations, and obtaining necessary federal, state and local approvals and environmental permits for those facilities. In this position, I work closely with

government officials, permitting agencies, property owners and other interested parties, as well as with other Company personnel, to develop facilities needed by the public so as to reasonably minimize environmental and other impacts on the public in a reliable, cost-effective manner.

Q. What is the purpose of your testimony in this proceeding?

A. In order to provide service requested by a retail electric service customer (the "Customer") in Prince William County, Virginia; to maintain reliable service for the overall growth in the area; and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; Virginia Electric and Power Company ("Dominion Virginia Power" or the "Company") proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

I am co-sponsoring, with Company Witness Jeffrey R. Thommes, portions of Sections II and III of the Appendix and the Environmental Routing Study.

Q. What activities have been and will be undertaken to reasonably minimize adverse impacts of the proposed Projects on the environment?

A. Within the parameters of the electrical requirements for these Projects, Dominion Virginia Power and its consultants, including NRG, have diligently worked to obtain relevant information from local, state and federal resources, mapping resources and public input in order to identify and thoroughly compare and evaluate the routing opportunities for this Project and ultimately select a Proposed Route and Alternative Routes that reasonably minimize impacts on the environment for the Commission's consideration.

The Company will continue to coordinate with the applicable local, state and federal agencies to provide the information they need to determine the permitting requirements and associated mitigation measures deemed necessary for the Project. Dominion Virginia Power will meet those requirements and obtain the necessary approvals for the construction of the Project.

Q. What contacts have you made within the local communities crossed by the proposed Project and other local authorities?

A. Presentations, open house displays and all other materials shared during public meetings were posted and are available on the project website at www.dom.com, keyword "Haymarket."

Q. Has the Company complied with Va. Code § 15.2-2202 D?

A. Yes. In addition to the foregoing communications with the impacted localities, and in accordance with Va. Code § 15.2-2202, letters dated October 5, 2015 were sent to

local officials in Prince William and Loudoun Counties advising of the Company's intention to file this application and inviting input about the Project and proposed transmission facilities. Copies of these letters are included as Appendix Attachment III.B.5.

Q. Does this complete your prefiled direct testimony?

A. Yes, it does.

Thommes

WITNESS DIRECT TESTIMONY SUMMARY

Witness: Jeffrey R. Thommes

Title: Program Director and Principal with Natural Resource Group, LLC

Summary:

Dominion Virginia Power proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

Company Witness Jeffrey Thommes provides an identification of potential routes for the proposed Project, describes the route selection process and route impacts, and sponsors the Environmental Routing Study.

The Company has provided in this application information for five route alternatives. The Company chose the overhead route parallel to Interstate 66 as its proposed route for the Project because it provides an opportunity to maximize co-location with existing infrastructure (primarily Interstate 66), presents a reasonable cost compared to the other identified alternative routes, and provides the shortest and most direct route to the proposed Haymarket Substation available.

The Company consulted with local, state and federal agencies to evaluate environmental, historical, scenic, cultural and architectural constraints existing in the vicinity of the Project.

DIRECT TESTIMONY
OF
JEFFREY R. THOMMES
ON BEHALF OF
VIRGINIA ELECTRIC AND POWER COMPANY
BEFORE THE
STATE CORPORATION COMMISSION OF VIRGINIA
CASE NO. PUE-2015-00107

Q. Please state your name, position and place of employment and business address.

A. My name is Jeffrey R. Thommes. I am employed as a Program Director and Principal with Natural Resource Group, LLC ("NRG"). My business address is 1000 IDS Center, 80 South Eighth Street, Minneapolis, Minnesota 55402.

Q. What is your educational and professional background?

A. I earned Bachelor of Science and Master of Science degrees from Southern Illinois University. I have 17 years of experience working in the energy-related consulting field working with the siting and regulatory permitting of major linear energy facilities, including both interstate and intrastate electric transmission lines and gas and oil pipelines throughout the United States. During this time, I have been employed with NRG, a privately owned consulting company specializing in the siting, licensing, and environmental construction compliance of large, multi-state energy transportation facilities. Prior to joining NRG, I was employed by a privately owned consulting company where I specialized in biological field surveys and managing projects through National Environmental Policy Act compliance.

My professional experience related to electric transmission line projects includes the direct management of field studies, impact assessments, and agency negotiations associated with the routing and licensing of multiple transmission line projects in the Eastern United States. Work on these projects included studies to identify and delineate routing constraints and options; identification and evaluation of route alternatives; and the direction of field studies to inventory wetlands, stream crossings, and sensitive habitats and land uses. Within the last several years, I managed the identification and evaluation of over 6,000 miles of 500 kV transmission line route alternatives for Duke-American Transmission Company in Wyoming, Colorado, Utah, and Nevada.

Q. What professional experience does NRG have with the routing of linear energy transportation facilities?

A. NRG has extensive experience in the routing and feasibility assessments of energy transportation projects. It has assisted its clients in the identification, evaluation and selection of linear energy facilities for the past 23 years. During this time, it has developed a consistent approach for linear facility routing and route selection based on the identification, mapping, and comparative evaluation of routing constraints and opportunities within defined study areas. NRG uses data-intensive Geographic Information System spatial and dimensional analysis and the most current and refined data layers and aerial photography resources available in the identification, evaluation, and selection of transmission line routes. In addition to Dominion Virginia Power, NRG's clients include some of the largest energy companies in the United States, Canada and the world,

including ExxonMobil, TransCanada, NV Energy, Niagara Mohawk, Kinder Morgan, BP, Enbridge Energy, Duke Energy, and others. NRG also routinely assists the staff of the Federal Energy Regulatory Commission and the U.S. Forest Service in the identification and/or evaluation of linear energy routes to support federal National Environmental Policy Act evaluations. NRG works on both small and large energy projects and has assisted in or conducted the routing and route evaluation of some of the largest electric transmission line and pipeline facilities in North America.

In Virginia, we served as routing consultant to the Company, including for its Cannon Branch-Cloverhill 230 kV transmission line project in the City of Manassas and Prince William County, approved by the Commission in Case No. PUE-2011-00011; Dahlgren 230 kV double circuit transmission line project in King George County, approved by the Commission in Case No. PUE-2011-00113; and Cloverhill-Liberty 230 kV project in approved by the Commission in Case No. PUE-2012-00065; and Warrenton/Wheeler/Gainsville 230 kV transmission line project in Prince William and Fauquier Counties, currently pending before the Commission in Case No. PUE-2014-00025. In addition, NRG provided routing consultation for the Company's Surry-Skiffes Creek-Whealton 500 and 230 kV transmission line involving Surry, York, James City, and Charles City Counties, as well as the Cities of Newport News and Williamsburg in Case No. PUE-2013-00029; and the electric transmission interconnection facilities for the Company's Brunswick County Power Station in Brunswick County, Virginia, approved by the Commission in Case No. PUE-2012-00128. NRG's role as

routing consultant for each of these transmission line projects included preparation of an Environmental Routing Study for the project and submission of testimony sponsoring it.

Q. What is the purpose of your testimony?

A. In order to provide service requested by a retail electric service customer (the "Customer") in Prince William County, Virginia; to maintain reliable service for the overall growth in the area; and to comply with mandatory North American Electric Reliability Corporation ("NERC") Reliability Standards; Dominion Virginia Power proposes to (i) convert its existing 115 kV Gainesville-Loudoun Line #124, located in Prince William and Loudoun Counties, to 230 kV operation; (ii) construct in Prince William County, Virginia and the Town of Haymarket, Virginia a new 230 kV double circuit transmission line to run approximately 5.1 miles from a tap point approximately 0.5 mile north of the Company's existing Gainesville Substation on the converted Line #124 ("Haymarket Junction") to a new 230-34.5 kV Haymarket Substation (the "Haymarket Loop"); and (iii) construct a 230-34.5 kV Haymarket Substation on land in Prince William County to be owned by the Company (Line #124 conversion, the Haymarket Loop and Haymarket Substation, collectively, the "Project").

The purpose of my testimony is to discuss the selection and impacts of the proposed route for the proposed Gainesville-Haymarket route ("Proposed Route") and alternative routes, as well as to introduce and sponsor the Environmental Routing Study, which is included as part of the application materials filed by the Company in this proceeding. In addition, I am sponsoring Sections II.A.1, 2, 4, 5,

7-9, III and V of the Appendix, and the DEQ Supplement with Company Witness Diana T. Faison.

Q. How did the Company's routing team begin its analysis and the process of route selection for the proposed Project?

A. The Company's route selection for a new transmission line typically begins with identification of the project "origin" and "termination" points provided by the Company's Transmission Planning Department and then the creation of a study area for the project. Dominion Virginia Power requested the services of NRG to help collect information within these study areas, perform a routing analysis comparing the alternative routes, and document the routing efforts in the Environmental Routing Study filed as part of this application. In addition, Dutton and Associates was engaged to identify known cultural and environmental resources.

Q. Please describe the Company's evaluation of transmission line siting to serve the proposed Haymarket Substation.

A. For this Project, the Company's Transmission Planning Department determined that the transmission facilities to serve the Customer's Haymarket Campus would need to include connection to existing Gainesville-Loudoun Line #124 once that facility is converted to 230 kV operation.

The Company's route selection for new transmission lines begins with creation of a study area to determine the possible extremes of routing a line between the point of origin and the termination point. Once a study area is determined, the land area

is reviewed to determine if there are any existing rights-of-way possible with which to co-locate; these areas are considered routing "opportunities." This approach of co-location generally minimizes impacts to both the natural and human environment; is consistent with FERC Guideline #1, which states that existing rights-of-way should be given priority when adding new transmission facilities; and is consistent with Va. Code §§ 56-46.1 and 56-259, both of which also promote the use of existing rights-of-way for new transmission facilities.

Concurrent with identifying co-location opportunities, sensitive environmental, political, or constructability-related features that may be considered routing constraints are identified in the study area.

After opportunities and constraints are mapped, the Company identifies buildable alternative routes, each of which meets the objective of the Project as well as siting criteria identified in the Code of Virginia and included in the Commission's Division of Energy Regulation *Guidelines of Minimum Requirements for Transmission Line Applications Filed Under Virginia Code Section 56-46.1 and The Utility Facilities Act.* After the potential routes were identified, the Company conducted an analysis using GIS to quantify potential impacts associated with constraints and the use of opportunities for each alternative. Crossings of sensitive features were measured and tabulated to facilitate route comparisons. Other factors such as visual and construction-related impacts were assessed based on the Company's experience in electric transmission route selection. A proposed route and alternative routes were then identified based on a comparison of

advantages and disadvantages of each route. The process considered both the sensitivity and extent of the constraints affected relative to each route.

Q. Did the Company consider other possible routes?

A. Yes. A total of five fully developed routes are described in the Appendix and Environmental Routing Study, including the Proposed Route and a Hybrid Alternative that also parallels Interstate 66. A detailed discussion of the Proposed Route and the Alternative Routes is provided in Section II.A of the Appendix and in the Environmental Routing Study.

Q. Please describe the Company's I-66 (Overhead) Alternative Route.

A. The Overhead I-66 Alternative Route is 5.1 miles long between Haymarket Junction and the proposed Haymarket Substation. This route originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road (SR 781) and extends for 5.1 miles through Prince William County and the Town of Haymarket, terminating at the proposed Haymarket Substation. It generally crosses commercially/industrially developed and forested land adjacent to existing transportation rights-of-way. The Interstate 66 parallel was developed to provide an opportunity to maximize co-location with existing infrastructure (primarily Interstate 66).

Q. Please describe the Company's Carver Road Alternative Route.

A. The Carver Road Alternative Route is a 6.7-mile double circuit transmission line between Haymarket Junction and the proposed Haymarket Substation. The Carver Road Alternative originates at the proposed tie-in location on the

converted 230 kV Line #124 near the end of Cushing Road and extends 6.7 miles, terminating at the proposed Haymarket Substation. The Carver Road Alternative Route was developed to provide an opportunity to partially co-locate with existing infrastructure (Norfolk Southern Railroad), and also to avoid crossing through the residential areas located north of Carver Road and avoid crossing between the subdivisions of Greenhill Crossing and Somerset Crossing.

Q. Please describe the Company's Madison Alternative Route.

A. The Madison Alternative Route is an 8.2-mile double circuit transmission line between Haymarket Junction and the proposed Haymarket Substation. The Madison Alternative Route originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends for 8.2 miles, terminating at the proposed Haymarket Substation. The Madison Alternative Route was developed to provide an opportunity to partially co-locate with the Norfolk Southern Railroad and also to avoid crossing near some of the residences near Interstate 66 along the Proposed Route.

Q. Please describe the Company's I-66 Hybrid Alternative Route.

A. The I-66 Hybrid Alternative Route is a new 230 kV double circuit transmission line 5.3 miles in length between Haymarket Junction and the proposed Haymarket Substation. The I-66 Hybrid Alternative Route originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends for about 5.3 miles through Prince William County and the Town of Haymarket, terminating at the proposed Haymarket Substation. In addition to providing an opportunity to maximize co-location, the I-66 Hybrid Alternative

Route was developed to avoid the potential for visual resource impact (viewpoint along I-66) during and after construction. The hybrid route would utilize both overhead and underground transmission facilities.

Q. Did the Company consider any other alternatives?

A. Yes. The fifth Alternative Route described in the Appendix is the Railroad Alternative Route. The Railroad Alternative Route is a new 230 kV double circuit transmission line 5.7 miles in length between Haymarket Junction and the proposed Haymarket Substation. The Railroad Alternative Route originates at the proposed tie-in location on the converted 230 kV Line #124 near the end of Cushing Road and extends for 5.7 miles through Prince William County and the Town of Haymarket, terminating at the proposed Haymarket Substation. The Railroad Alternative Route was developed to identify a potential route to avoid the I-66 right-of-way and to provide an opportunity to maximize co-location with existing infrastructure (Norfolk Southern Railroad).

Early in the routing process for the proposed Project, the Railroad Alternative Route was identified by the Company as a preferred alternative that could meet the need and seemed to be the route that would reasonably minimize adverse impacts. However, on December 11, 2014, the Prince William County Board of County Supervisors voted to approve the conveyance of a property interest by the property owner, a Home Owners' Association ("HOA") to Prince William County, rendering this alternative unable to be built without agreement by the County. The County has indicated to the Company that it will not permit an overhead transmission line to be constructed across its open space easement

property interest as would be required for this routing alternative. However, as the alternative route that impacts the least number of residences within 100 feet of the centerline (0 residences), the Company is still including the Railroad Alternative Route for Commission consideration in the event agreement with Prince William County can be reached.

Q. Which alternative did Dominion Virginia Power select as the Proposed Route for the Project?

A. The Company chose the overhead route parallel to Interstate 66 as its Proposed Route for the Haymarket Tap because it provides an opportunity to maximize co-location with existing infrastructure (I-66 and Norfolk Southern Railroad), presents a reasonable cost compared to the other Alternative Routes, and provides the shortest and most direct route to the proposed Haymarket Substation available.

Q. How has the Company approached the environmental review and permitting process for the proposed Project?

A. The Company developed the DEQ Supplement that is included with this application based on previous Company coordination with the DEQ. The DEQ Supplement contains, in addition to a summary description of the proposed Project, information on impacts and the status of agency review with respect to the following: air quality; water withdrawals and discharges; wetlands; solid and hazardous waste; natural heritage and endangered species; erosion and sediment control; archeological, historic, scenic, cultural and architectural resources; use of pesticides and herbicides; geology and mineral resources; wildlife resources; recreation, agricultural and forest resources; and transportation infrastructure.

The DEQ Supplement also discusses the permits that will be required and includes comment letters and other materials that Dominion Virginia Power has obtained regarding the proposed Project from relevant agencies as a result of the Company's efforts.

Q. Does this conclude your prefiled direct testimony?

A. Yes, it does.